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IAP66

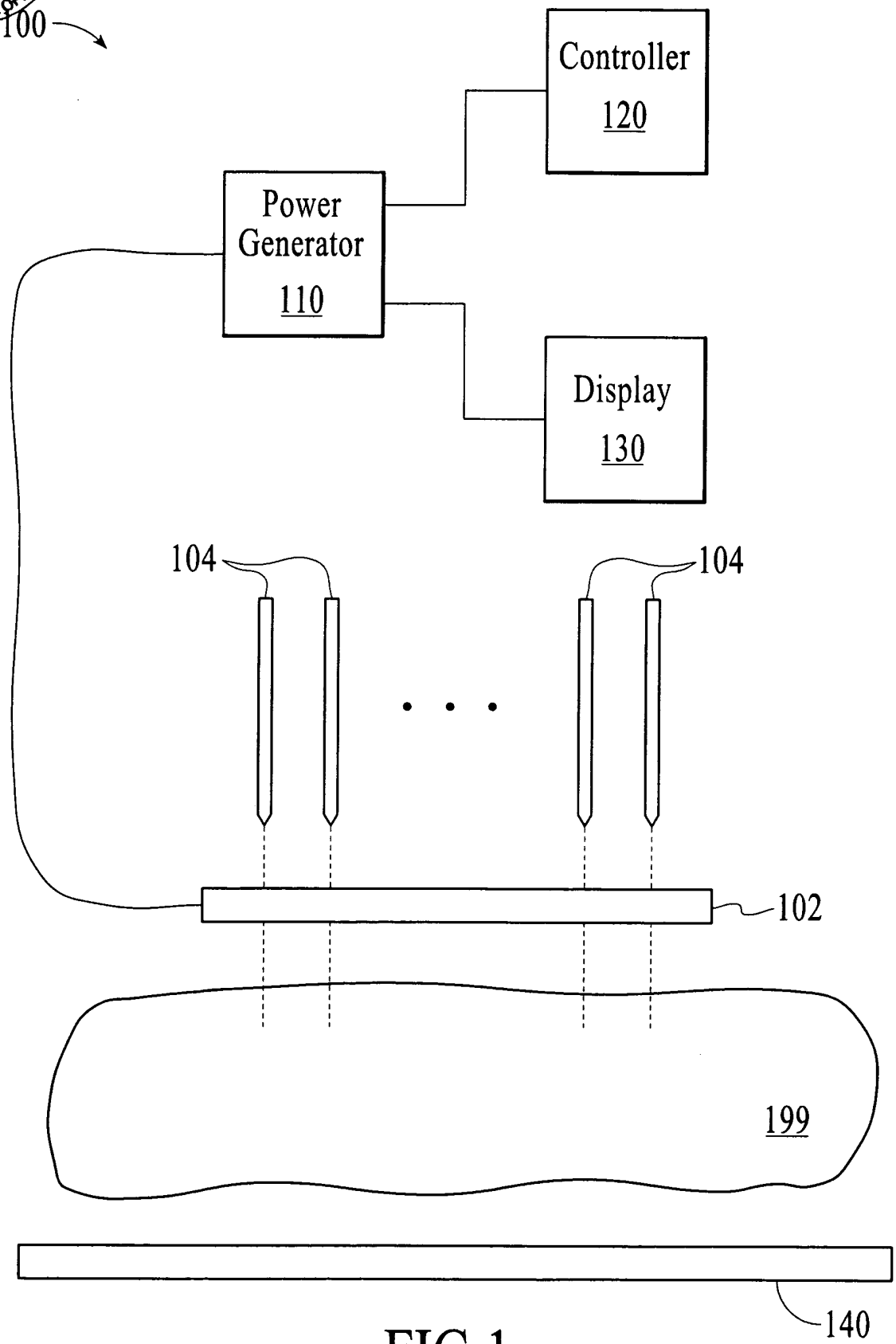


FIG.1

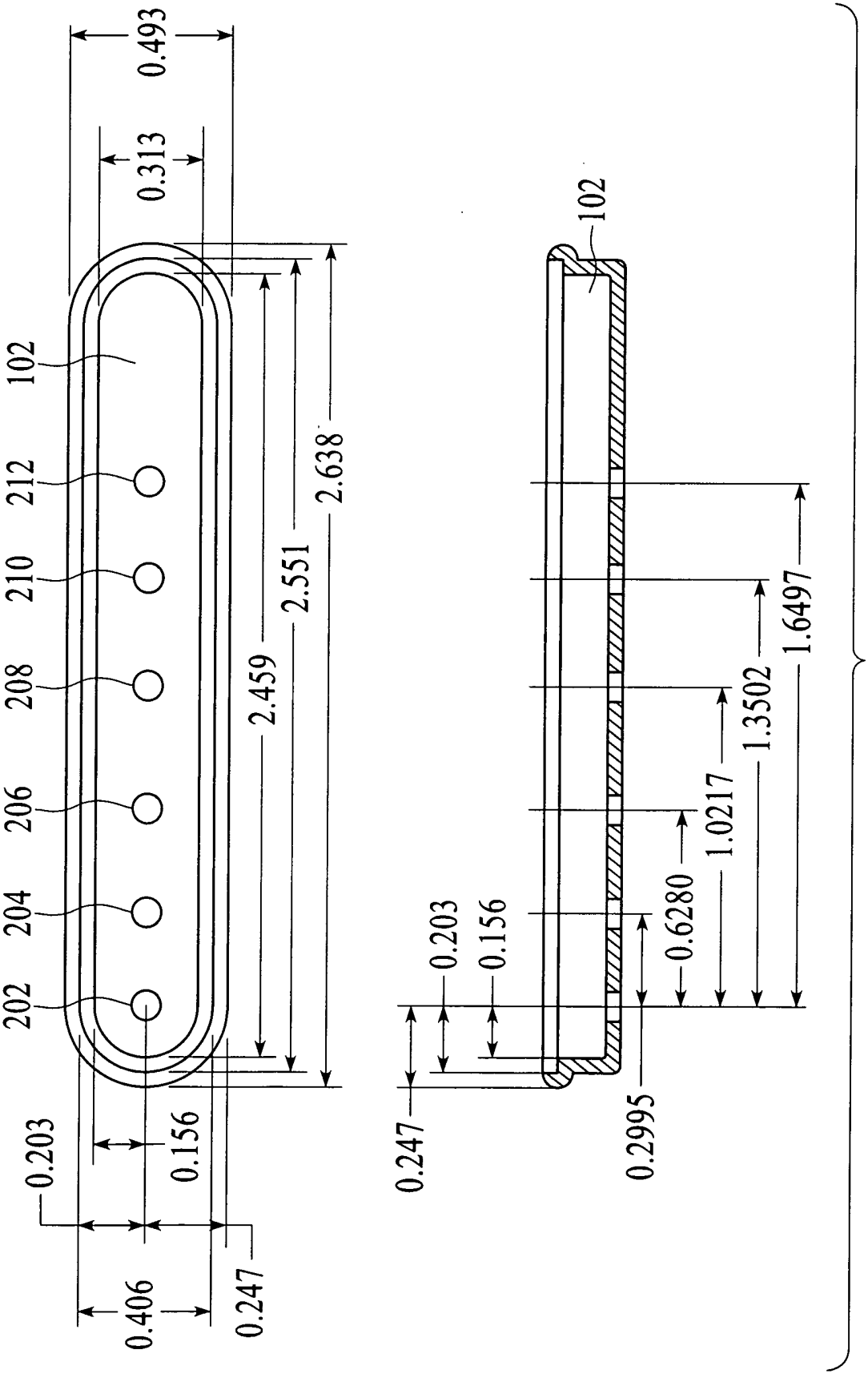
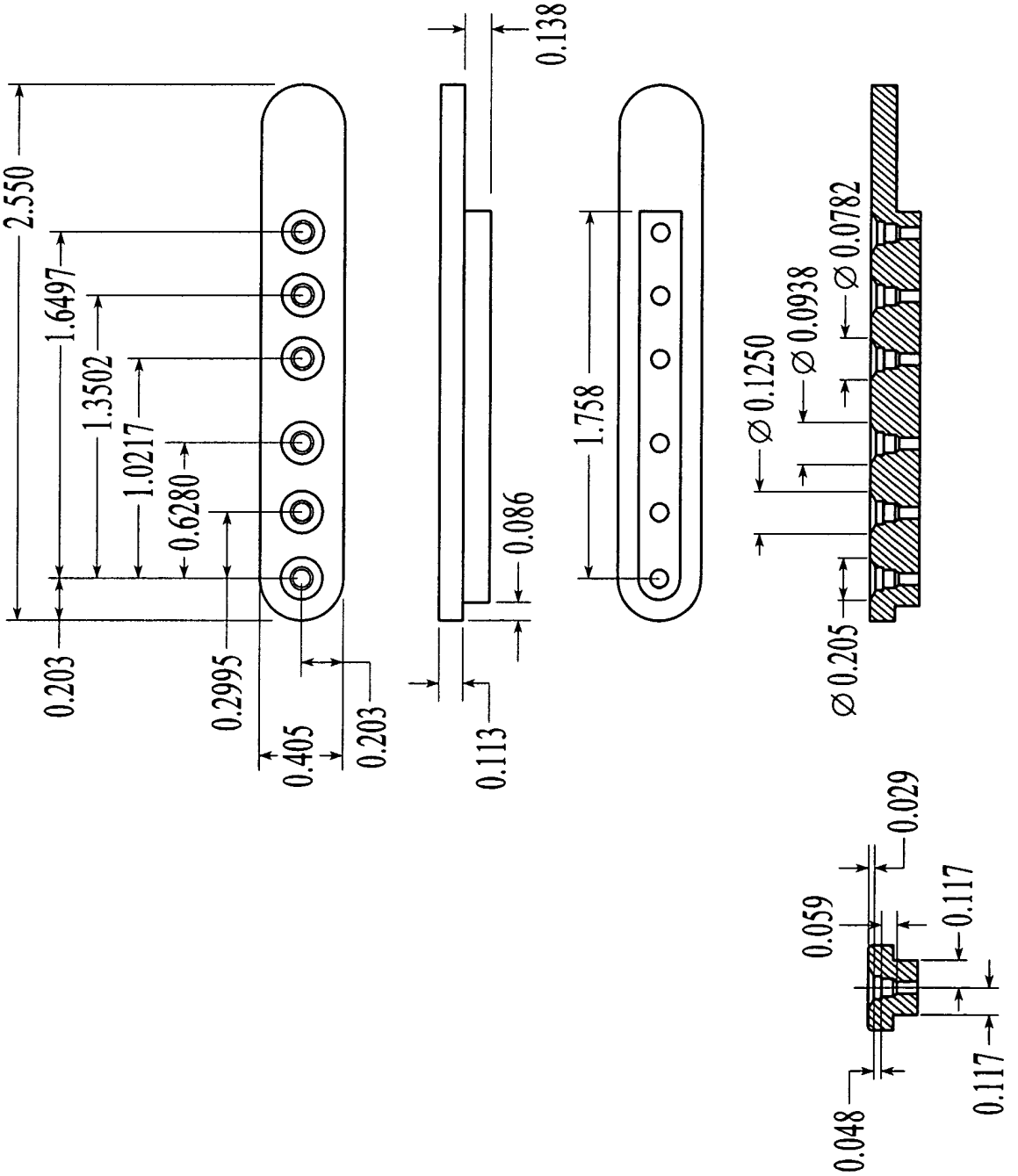
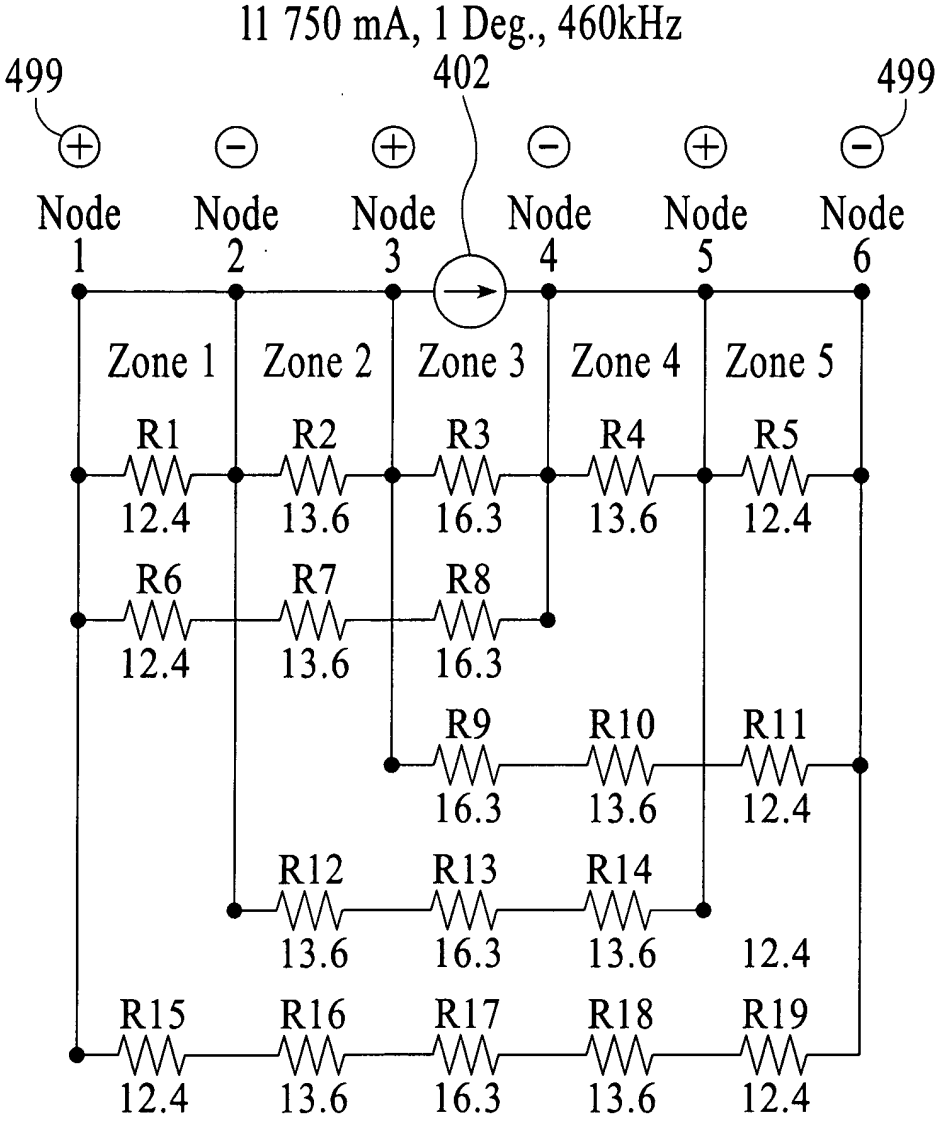

0.493
0.313
102
212
210
208
206
204
202
2.638
2.551
2.459
0.203
0.156
0.406
0.247
102
0.203
0.156
0.6280
1.0217
1.3502
1.6497
0.247
0.2995

FIG.2

FIG.3


2.550
1.6497
1.3502
1.0217
0.6280
0.203
0.2995
0.405
0.203
0.138
0.086
0.113
1.758
Ø 0.1250
Ø 0.0938
Ø 0.0782
Ø 0.205
0.029
0.059
0.117
0.048
0.117


11 750 mA, 1 Deg., 460kHz
499
402
499
Node 1
Node 2
Node 3
Node 4
Node 5
Node 6
Zone 1
Zone 2
Zone 3
Zone 4
Zone 5
R1 12.4
R2 13.6
R3 16.3
R4 13.6
R5 12.4
R6 12.4
R7 13.6
R8 16.3
R9 16.3
R10 13.6
R11 12.4
R12 13.6
R13 16.3
R14 13.6
12.4
R15 12.4
R16 13.6
R17 16.3
R18 13.6
R19 12.4

400

FIG.4A

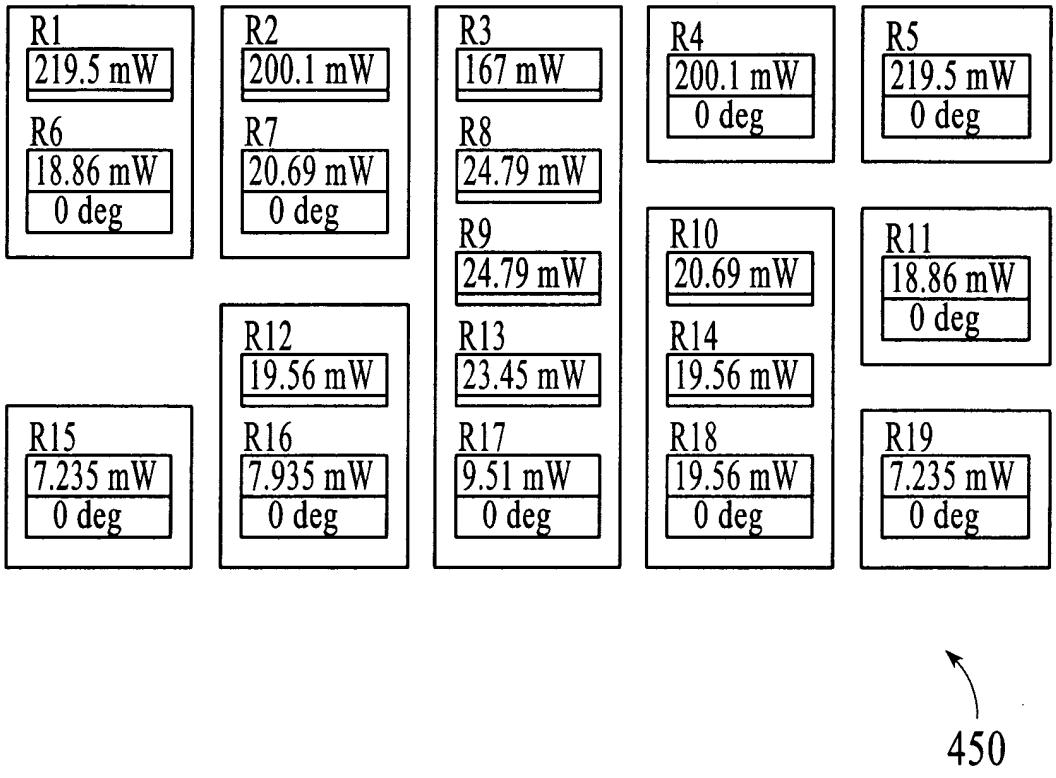

R1
219.5 mW
R6
18.86 mW
0 deg
R2
200.1 mW
R7
20.69 mW
0 deg
R3
167 mW
R8
24.79 mW
R9
24.79 mW
R13
23.45 mW
R17
9.51 mW
0 deg
R4
200.1 mW
0 deg
R5
219.5 mW
0 deg
R10
20.69 mW
R14
19.56 mW
R18
19.56 mW
0 deg
R11
18.86 mW
0 deg
R19
7.235 mW
0 deg
R12
19.56 mW
R16
7.935 mW
0 deg
R15
7.235 mW
0 deg
450

FIG.4B

480 ~ Values with Balanced Circuit

	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	
	219.5 18.86 7.235	200.1 20.69 19.56 7.935	167 24.79 24.79 23.45 9.51	200.1 20.69 19.56 7.935	219.5 18.86 7.235	
482 ~ Total Power per Zone	245.595	248.285	249.54	248.285	245.595	
% Error per Zone	0	-1.095299	-1.606303	-1.095299	0	
"Spacing" Value per Zone	12.4	13.6	16.3	13.6	12.4	
484 ~ "Spacing" Ratio per Zone	1.00	1.097	1.315	1.097	1.00	
486 ~ "Spacing" Ratio per Zone	0.760736	0.834356	1	0.834356	0.760736	4.190184

FIG.4C

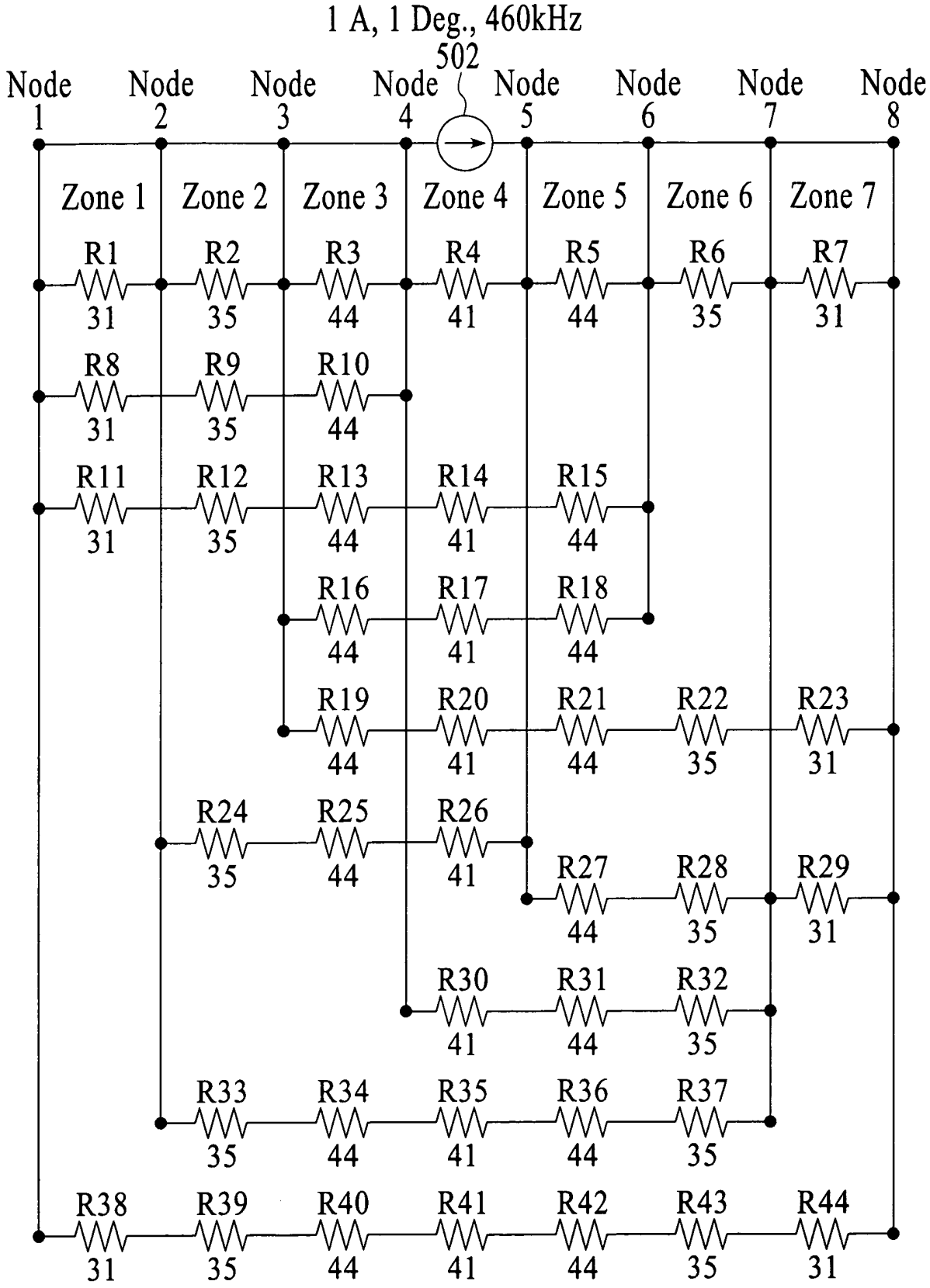

1 A, 1 Deg., 460kHz
502
Node 1
Node 2
Node 3
Node 4
Node 5
Node 6
Node 7
Node 8
Zone 1
Zone 2
Zone 3
Zone 4
Zone 5
Zone 6
Zone 7
R1 31
R2 35
R3 44
R4 41
R5 44
R6 35
R7 31
R8 31
R9 35
R10 44
R11 31
R12 35
R13 44
R14 41
R15 44
R16 44
R17 41
R18 44
R19 44
R20 41
R21 44
R22 35
R23 31
R24 35
R25 44
R26 41
R27 44
R28 35
R29 31
R30 41
R31 44
R32 35
R33 35
R34 44
R35 41
R36 44
R37 35
R38 31
R39 35
R40 44
R41 41
R42 44
R43 35
R44 31
500

FIG.5A

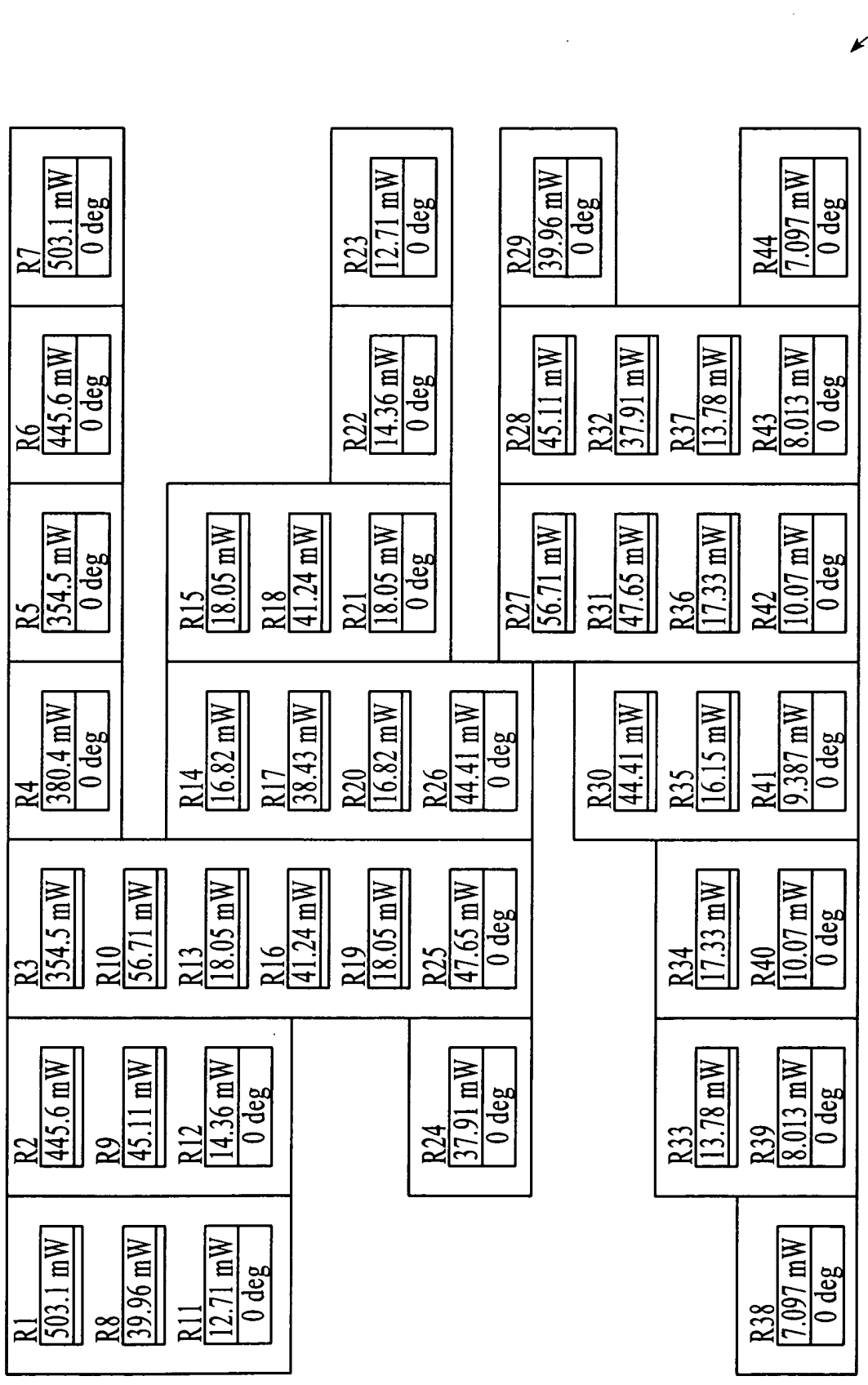
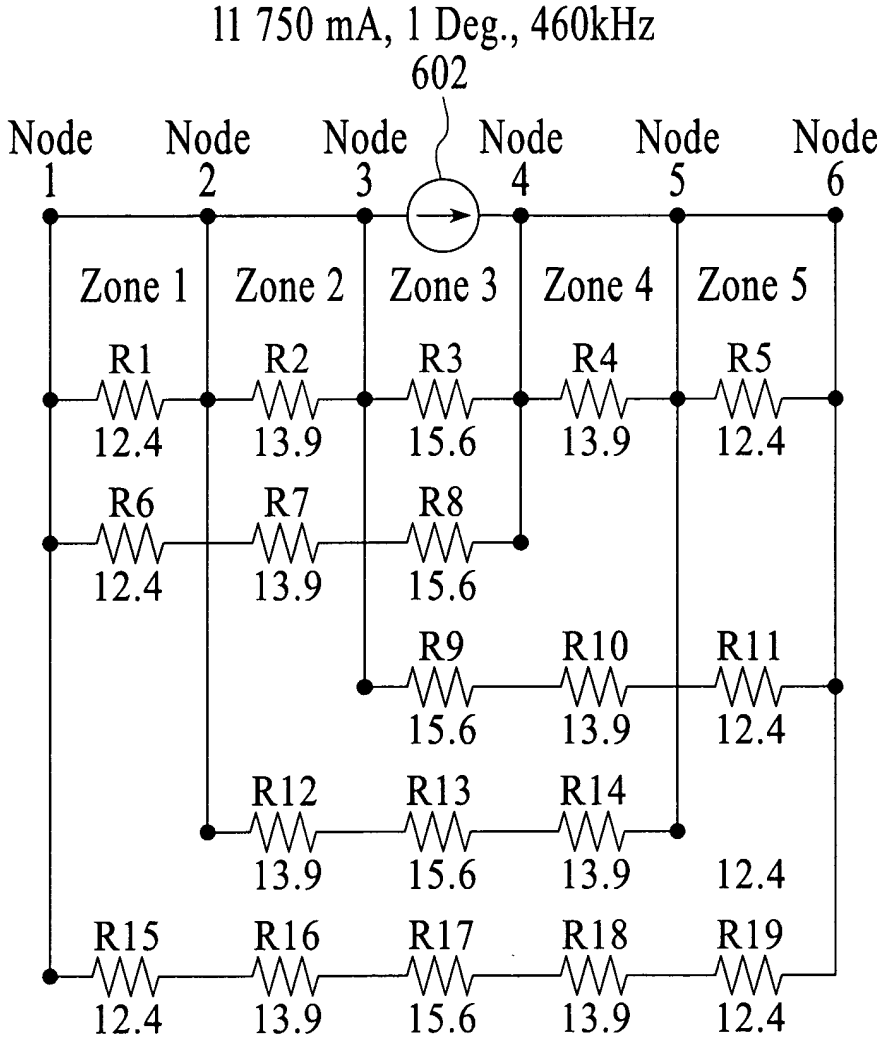

550
R1 503.1 mW 0 deg
R8 39.96 mW
R11 12.71 mW
R2 445.6 mW
R9 45.11 mW
R12 14.36 mW
R3 354.5 mW
R10 56.71 mW
R13 18.05 mW
R16 41.24 mW
R19 18.05 mW
R24 37.91 mW
R25 47.65 mW
R4 380.4 mW
R14 16.82 mW
R17 38.43 mW
R20 16.82 mW
R26 44.41 mW
R5 354.5 mW
R15 18.05 mW
R18 41.24 mW
R21 18.05 mW
R6 445.6 mW
R22 14.36 mW
R7 503.1 mW
R23 12.71 mW
R38 7.097 mW
R33 13.78 mW
R39 8.013 mW
R34 17.33 mW
R40 10.07 mW
R30 44.41 mW
R35 16.15 mW
R41 9.387 mW
R27 56.71 mW
R31 47.65 mW
R36 17.33 mW
R42 10.07 mW
R28 45.11 mW
R32 37.91 mW
R37 13.78 mW
R43 8.013 mW
R29 39.96 mW
R44 7.097 mW

FIG.5B

	580 ~ Values with Balanced Circuit						
	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6	Zone 7
	503.1	445.6	354.5	380.4	354.5	445.6	503.1
	39.96	45.11	56.71	16.82	18.05	14.36	12.71
	12.71	14.36	18.05	38.43	41.24	45.11	39.96
	7.097	37.91	41.24	16.82	18.05	37.91	7.097
		13.78	18.05	44.41	56.71	13.78	
		8.013	47.65	44.41	47.65	8.013	
			17.33	16.15	17.33		
			10.07	9.387	10.07		
582 ~ Total Power per Zone	562.87	564.77	563.60	566.83	563.60	564.77	562.87
% Error per Zone	0.00	0.34	0.13	0.70	0.13	0.34	0.00
"Spacing" Value per Zone	31	35	44	41	44	35	31
584 ~ "Spacing" Ratio per Zone	1.000	1.129	1.419	1.323	1.419	1.129	1.000
586 ~ "Spacing" Ratio per Zone	0.704545	0.795455	1	0.931818	1	0.795455	0.704545

FIG.5C


11 750 mA, 1 Deg., 460kHz
602
Node 1
Node 2
Node 3
Node 4
Node 5
Node 6
Zone 1
Zone 2
Zone 3
Zone 4
Zone 5
R1 12.4
R2 13.9
R3 15.6
R4 13.9
R5 12.4
R6 12.4
R7 13.9
R8 15.6
R9 15.6
R10 13.9
R11 12.4
R12 13.9
R13 15.6
R14 13.9
12.4
R15 12.4
R16 13.9
R17 15.6
R18 13.9
R19 12.4

600

FIG.6A

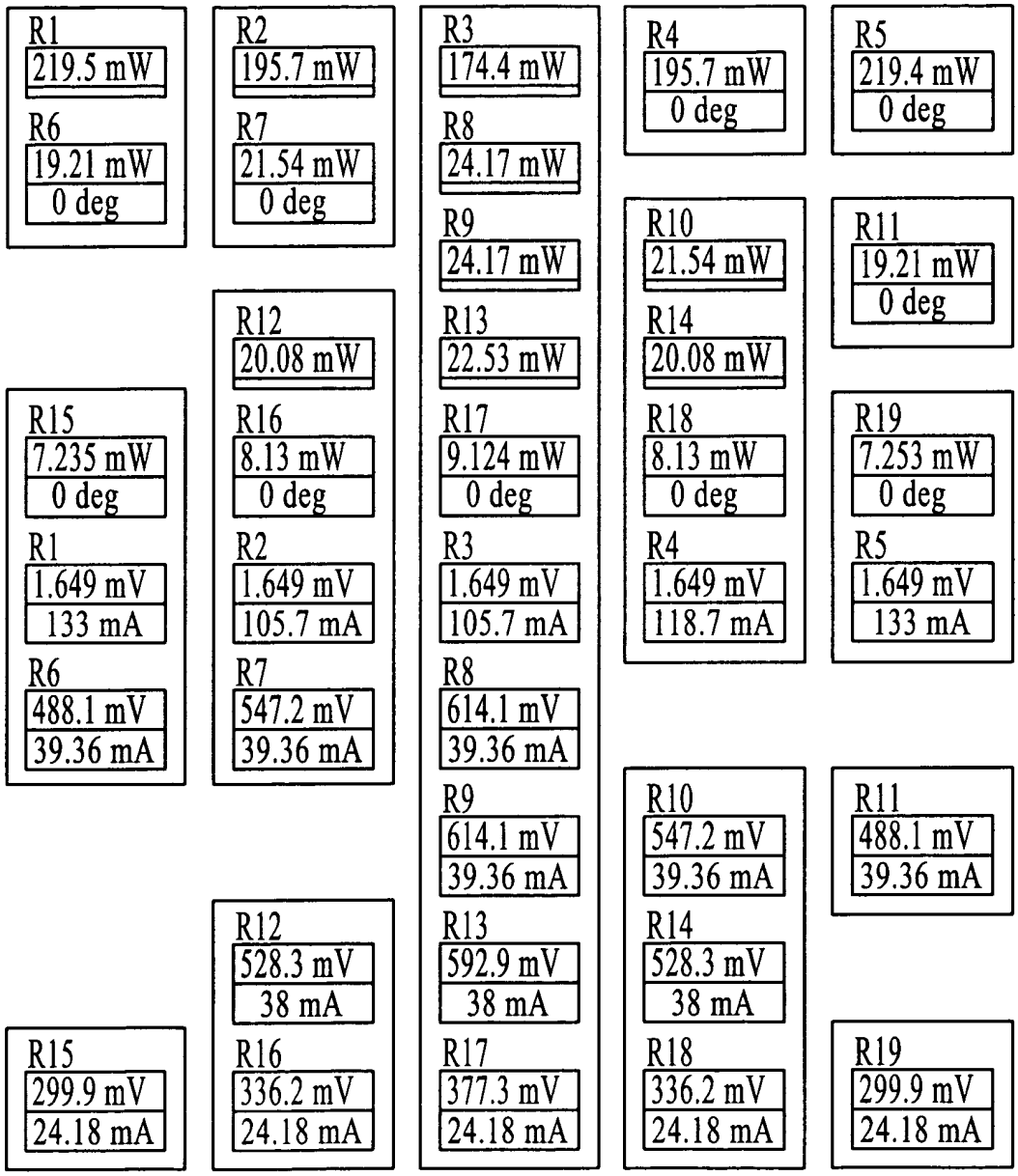

R1
219.5 mW
R6
19.21 mW
0 deg
R2
195.7 mW
R7
21.54 mW
0 deg
R3
174.4 mW
R8
24.17 mW
R9
24.17 mW
R13
22.53 mW
R17
9.124 mW
0 deg
R3
1.649 mW
105.7 mA
R8
614.1 mV
39.36 mA
R9
614.1 mV
39.36 mA
R13
592.9 mV
38 mA
R17
377.3 mV
24.18 mA
R4
195.7 mW
0 deg
R5
219.4 mW
0 deg
R10
21.54 mW
R14
20.08 mW
R18
8.13 mW
0 deg
R4
1.649 mW
118.7 mA
R11
19.21 mW
0 deg
R19
7.253 mW
0 deg
R5
1.649 mW
133 mA
R12
20.08 mW
R16
8.13 mW
0 deg
R2
1.649 mW
105.7 mA
R7
547.2 mV
39.36 mA
R15
7.235 mW
0 deg
R1
1.649 mW
133 mA
R6
488.1 mV
39.36 mA
R10
547.2 mV
39.36 mA
R14
528.3 mV
38 mA
R18
336.2 mV
24.18 mA
R11
488.1 mV
39.36 mA
R19
299.9 mV
24.18 mA
R12
528.3 mV
38 mA
R16
336.2 mV
24.18 mA
R15
299.9 mV
24.18 mA
650

FIG.6B

680 ~ Values with Balanced Circuit

	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5
	133 39.36 24.18	118.7 39.36 38 24.18	105.7 39.36 39.36 38 24.18	118.7 39.36 38 24.18	133 39.36 24.18
Total Current per Zone	196.54	220.24	246.6	220.24	196.54
"Spacing" Value per Zone	12.4	13.9	15.6	13.9	12.4
682 ~ Current Density per Zone	15.85	15.8446	15.80769	15.8446	15.85
% Error	0.0	0.0	0.3	0.0	0.0
684 ~ "Spacing" Ratio per Zone	1.00	1.12	1.26	1.12	1.00
686 ~ "Spacing" Ratio per Zone	0.79	0.89	1.00	0.89	0.79

FIG.6C

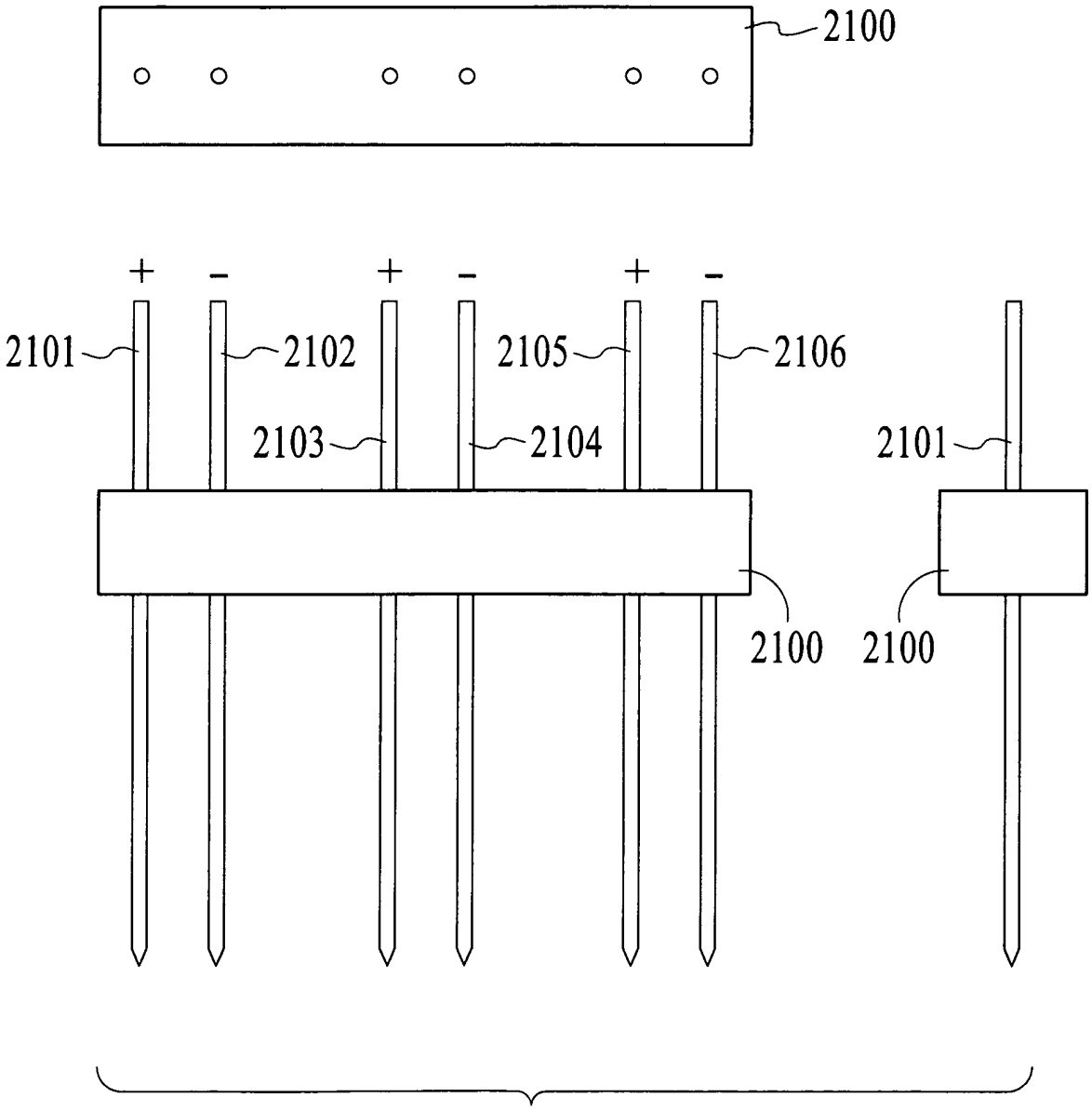


FIG.7

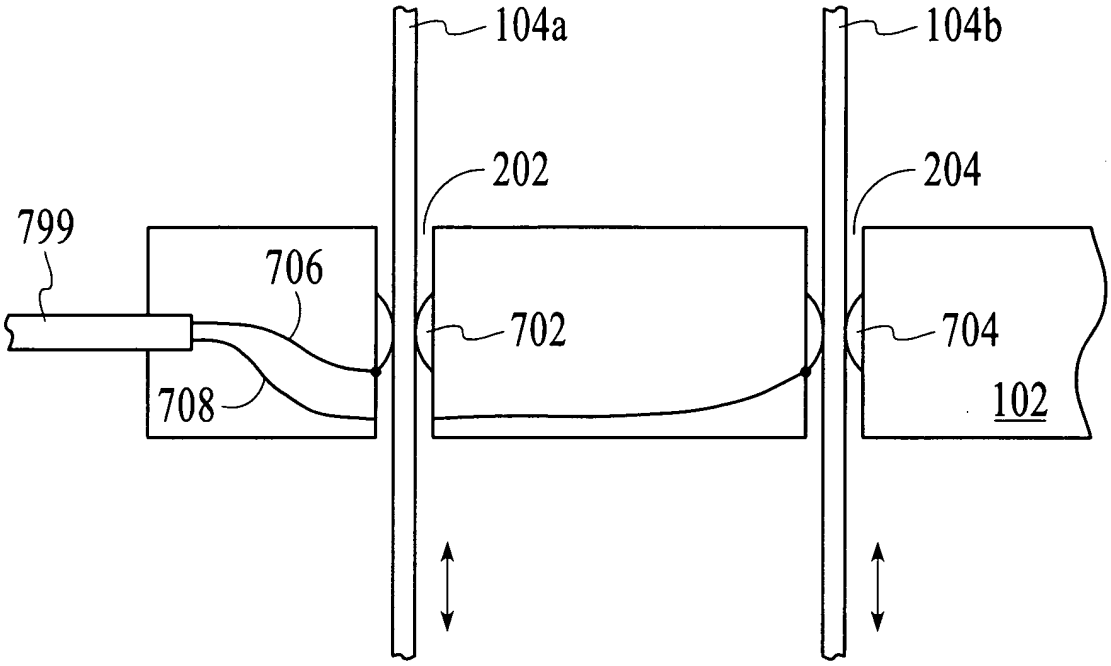


FIG.8

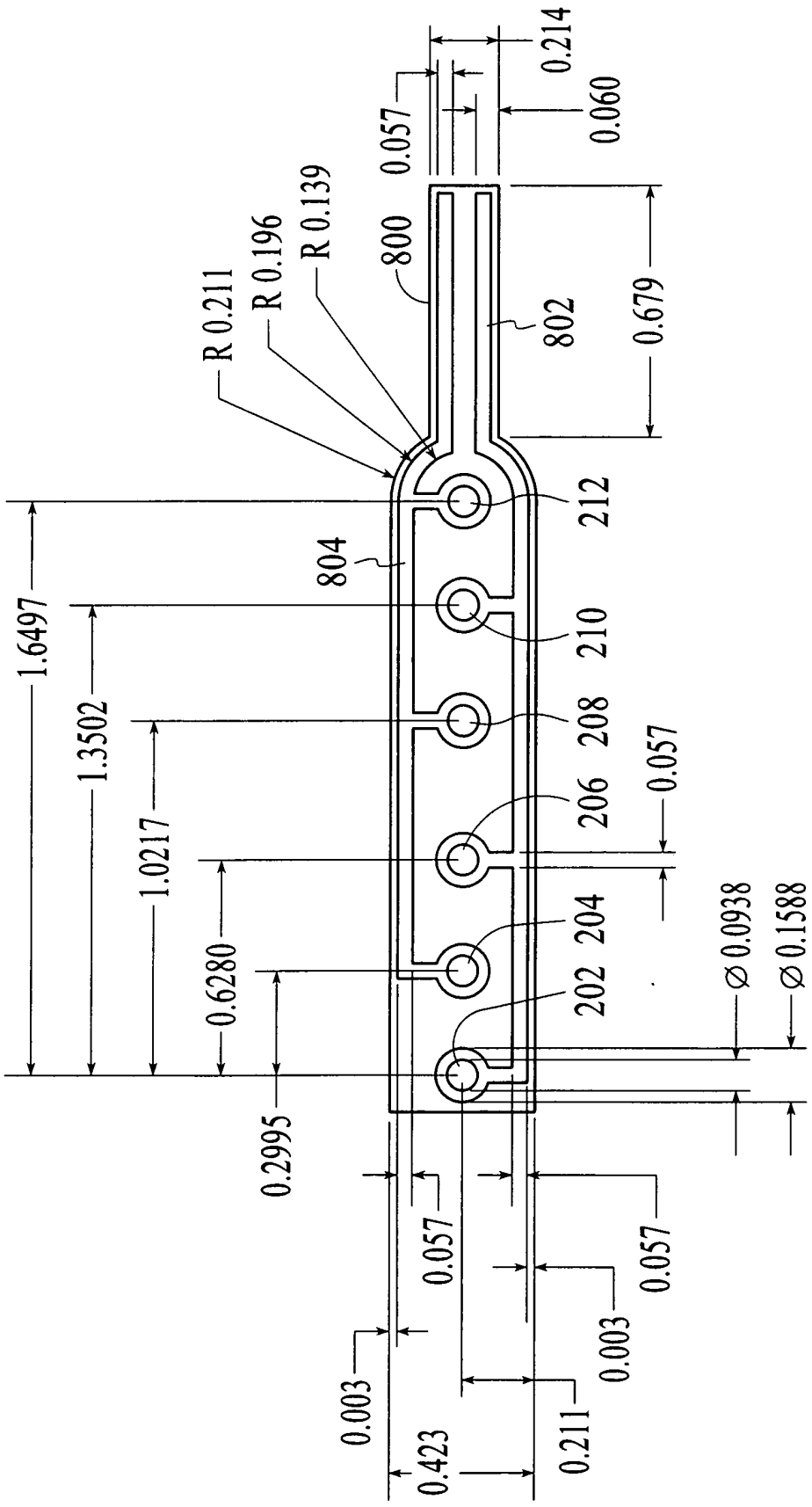

0.214
0.060
0.057
800
R 0.139
R 0.196
R 0.211
802
0.679
212
804
210
208
206
202
204
1.6497
1.3502
1.0217
0.6280
0.2995
0.057
Ø 0.0938
Ø 0.1588
0.057
0.057
0.003
0.003
0.211
0.423

FIG.9

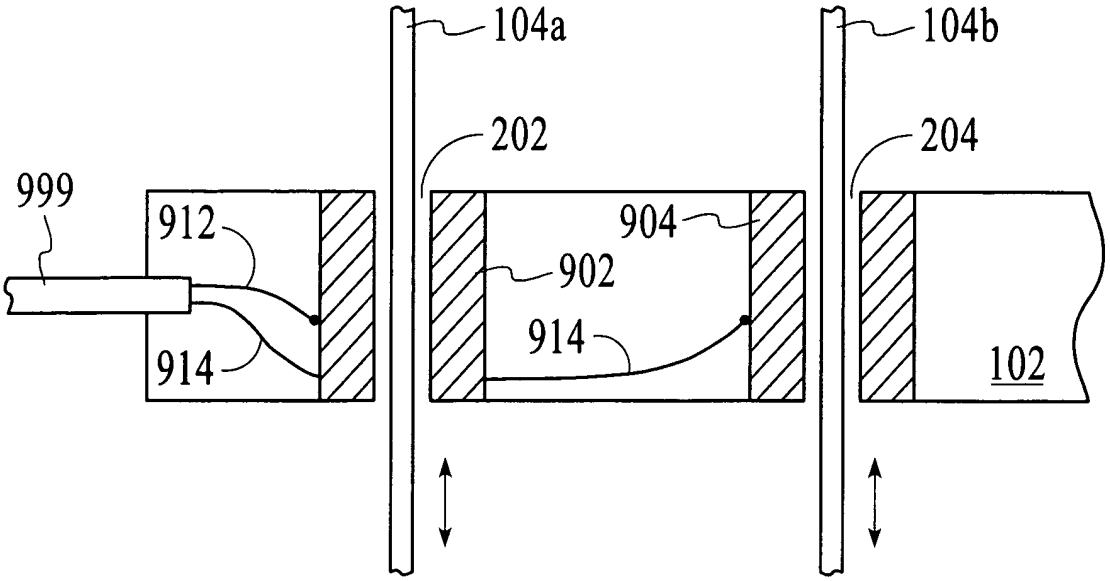


FIG.10

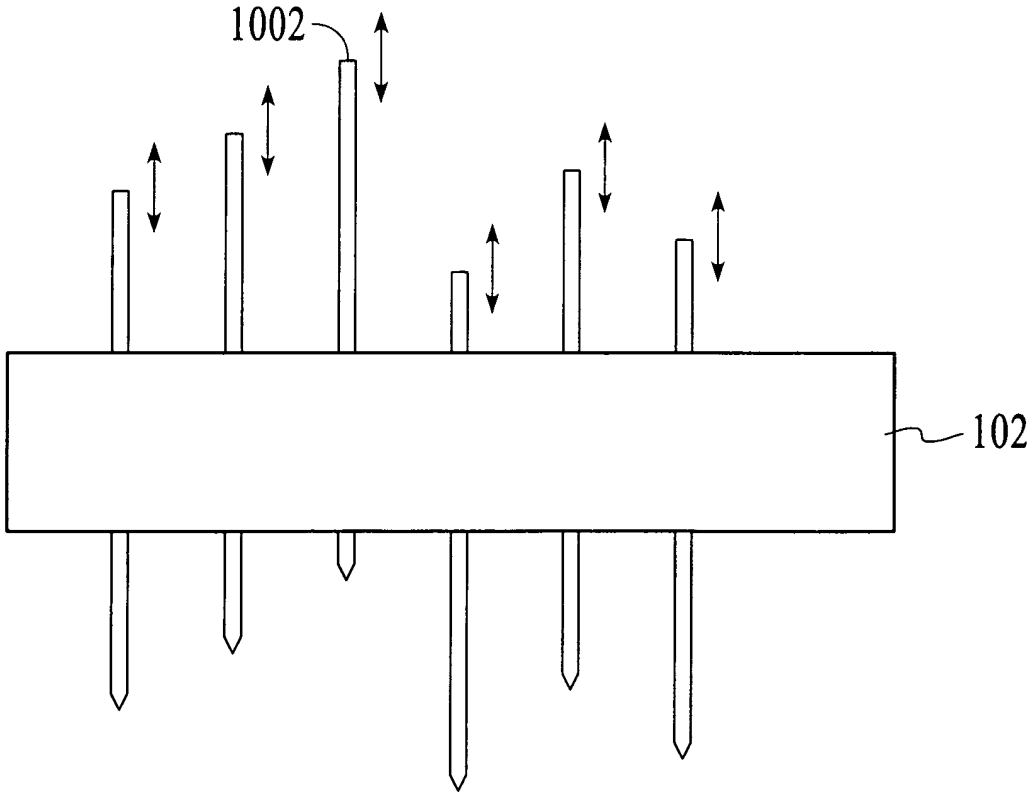


FIG.11

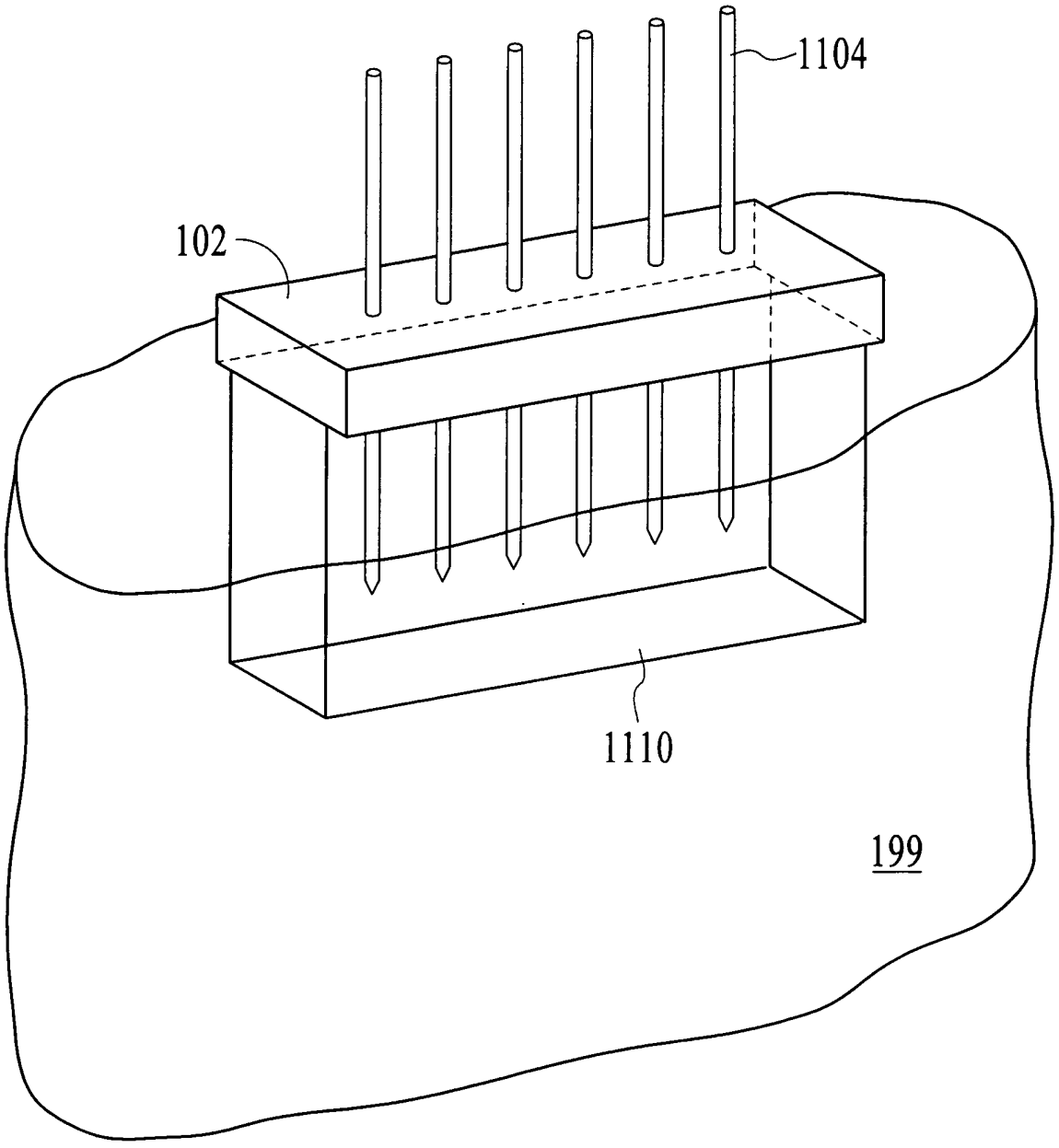


FIG.12

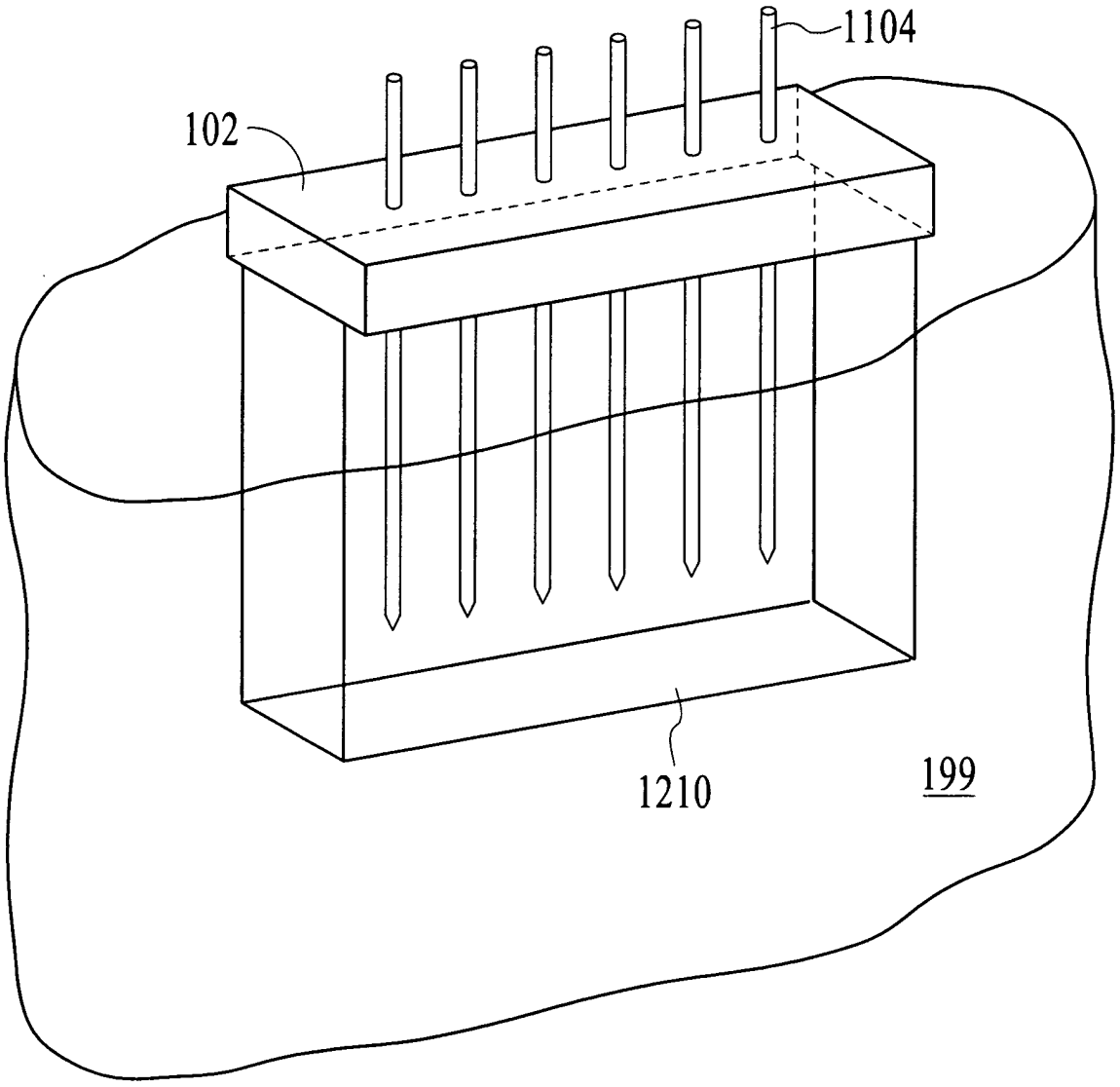


FIG.13

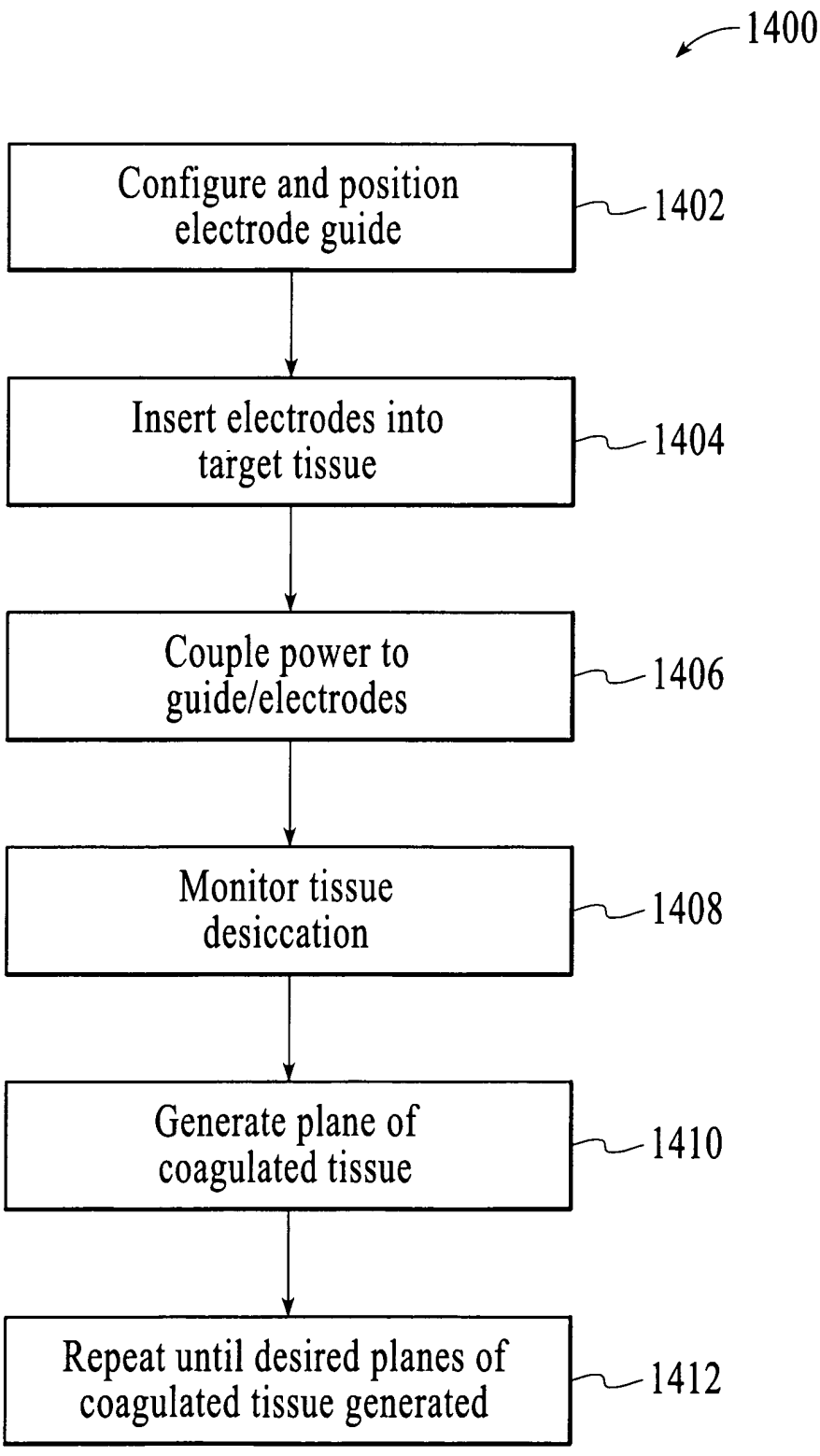

1400
Configure and position electrode guide
1402
Insert electrodes into target tissue
1404
Couple power to guide/electrodes
1406
Monitor tissue desiccation
1408
Generate plane of coagulated tissue
1410
Repeat until desired planes of coagulated tissue generated
1412

FIG.14

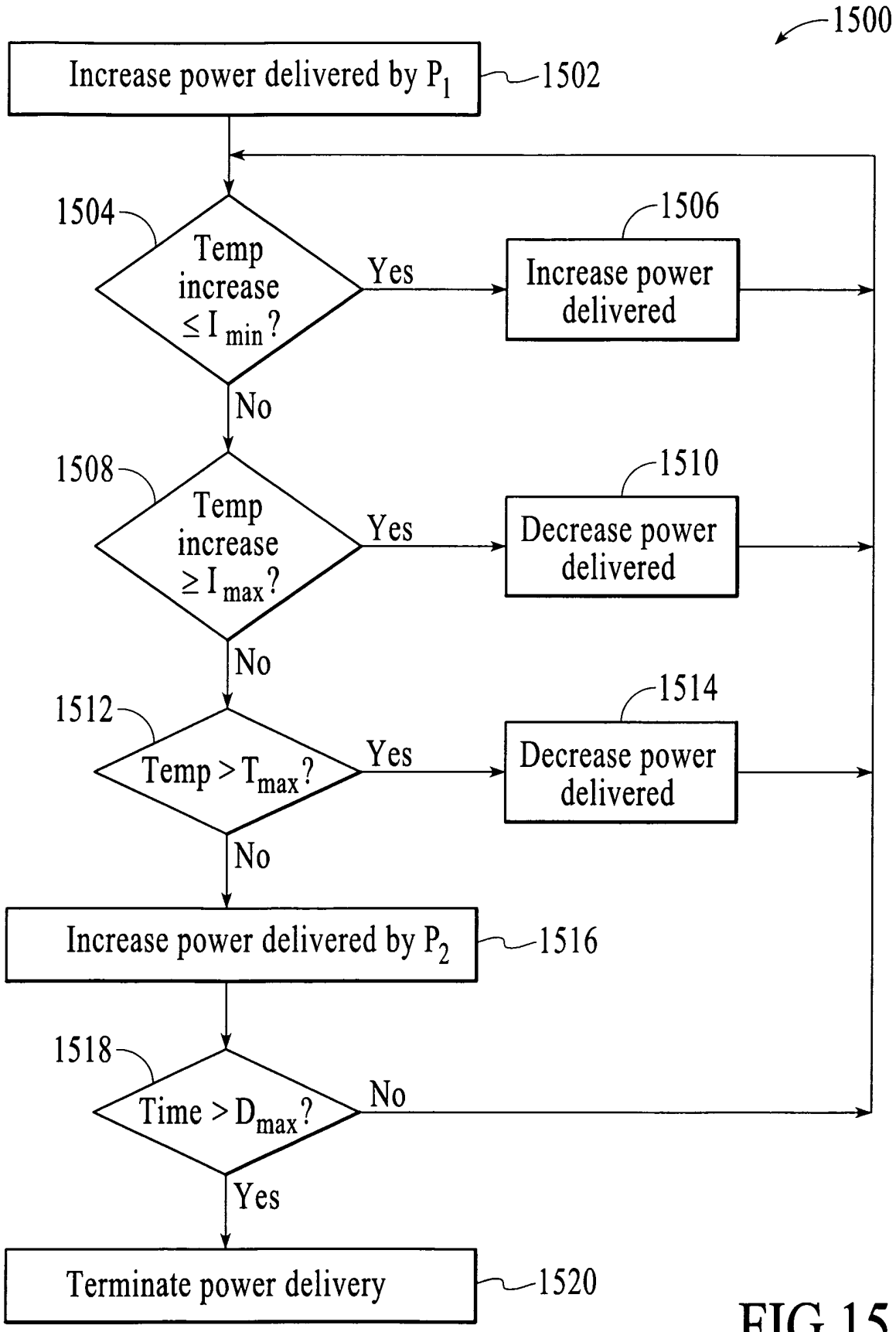

1500
Increase power delivered by P_1
1502
1504
Temp increase $\leq I_{min}$?
Yes
1506
Increase power delivered
No
1508
Temp increase $\geq I_{max}$?
Yes
1510
Decrease power delivered
No
1512
Temp > T_{max}?
Yes
1514
Decrease power delivered
No
Increase power delivered by P_2
1516
1518
Time > D_{max}?
No
Yes
Terminate power delivery
1520

FIG.15

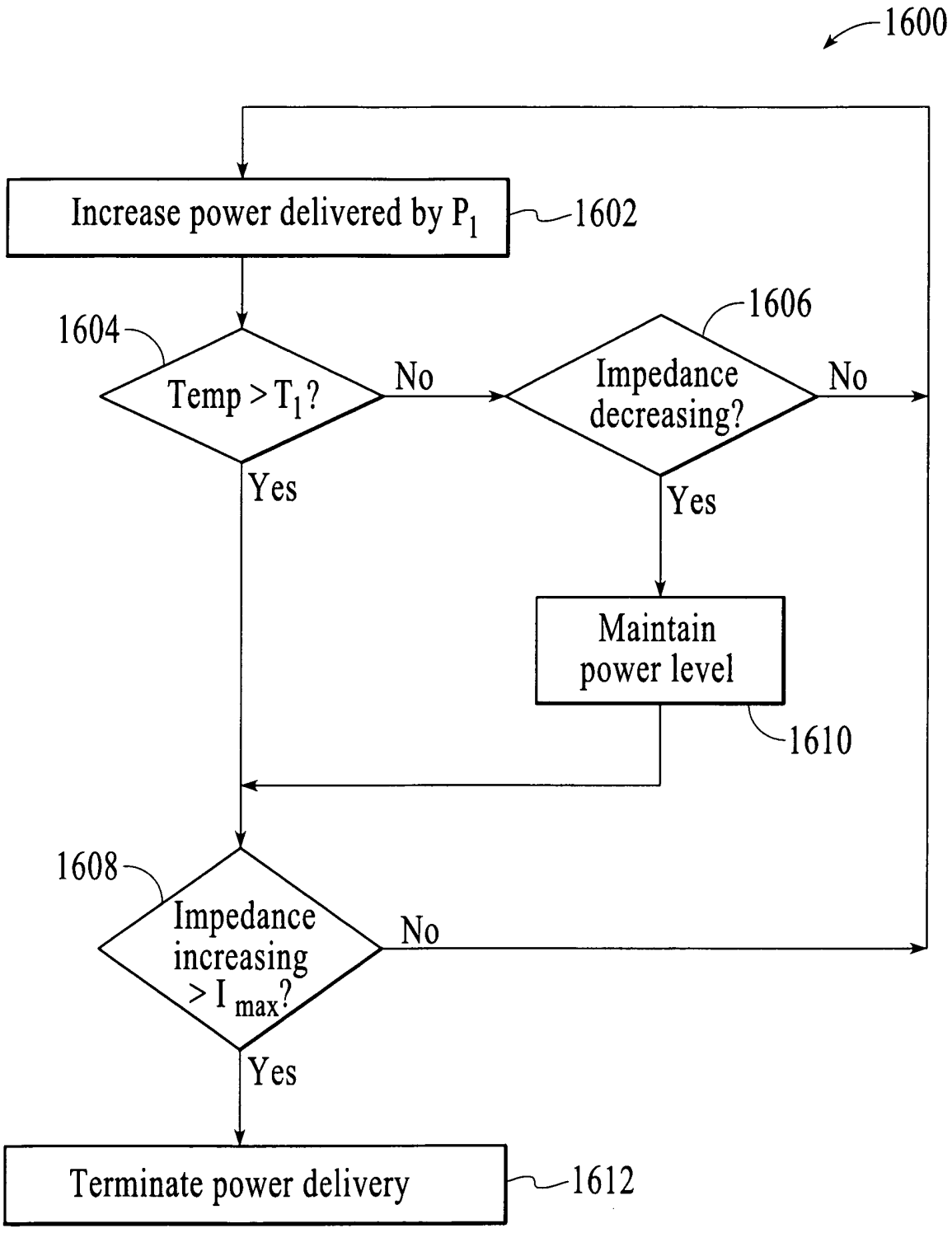

1600
Increase power delivered by P_1
1602
1604
Temp > T_1?
No
1606
Impedance decreasing?
No
Yes
Yes
Maintain power level
1610
1608
Impedance increasing > I_{max}?
No
Yes
Terminate power delivery
1612

FIG.16

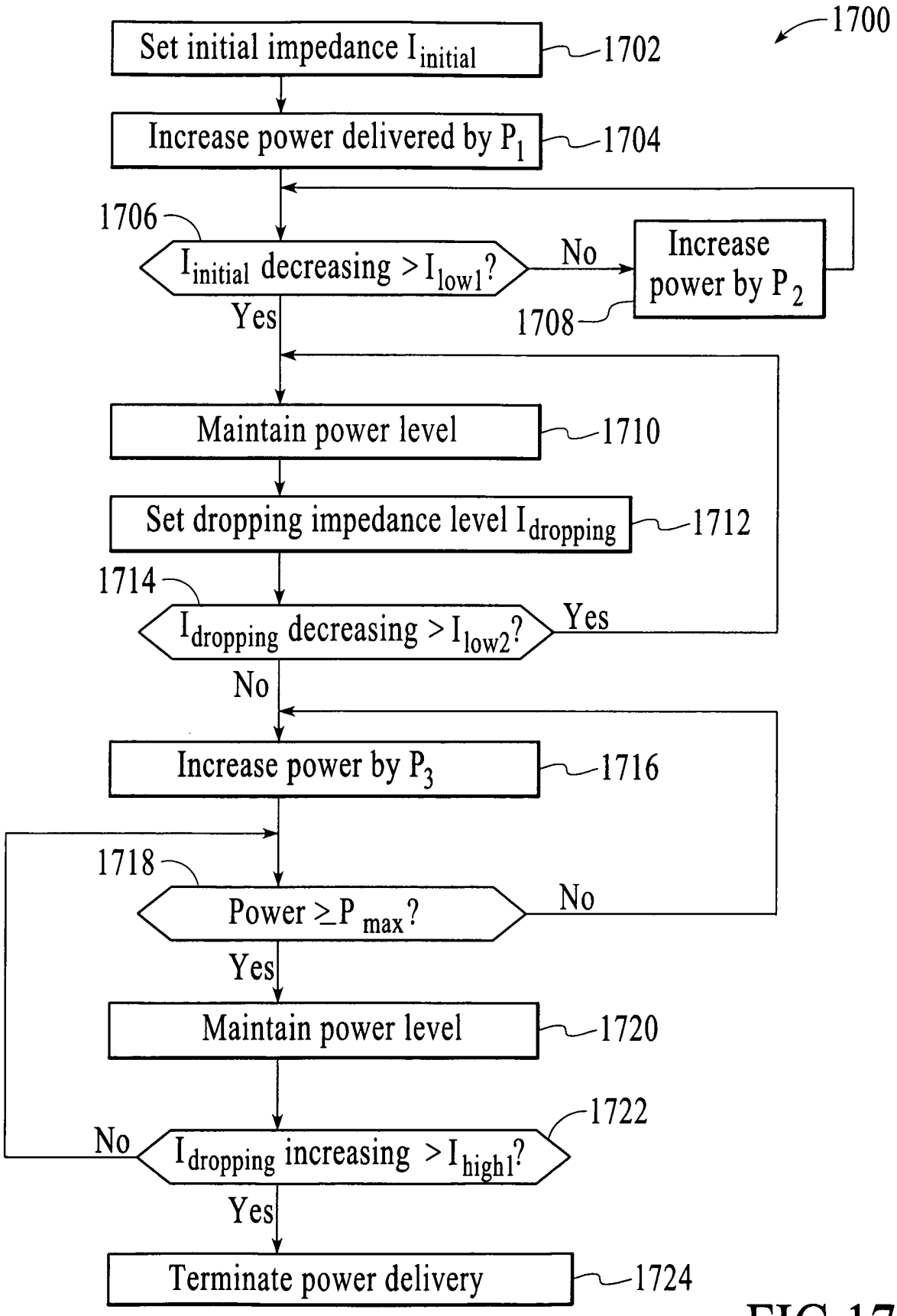

1700
Set initial impedance $I_{initial}$
1702
Increase power delivered by P_1
1704
1706
$I_{initial}$ decreasing > I_{low1}?
No
Increase power by P_2
1708
Yes
Maintain power level
1710
Set dropping impedance level $I_{dropping}$
1712
1714
$I_{dropping}$ decreasing > I_{low2}?
Yes
No
Increase power by P_3
1716
1718
Power ≥ P_{max}?
No
Yes
Maintain power level
1720
1722
No
$I_{dropping}$ increasing > I_{high1}?
Yes
Terminate power delivery
1724

FIG.17

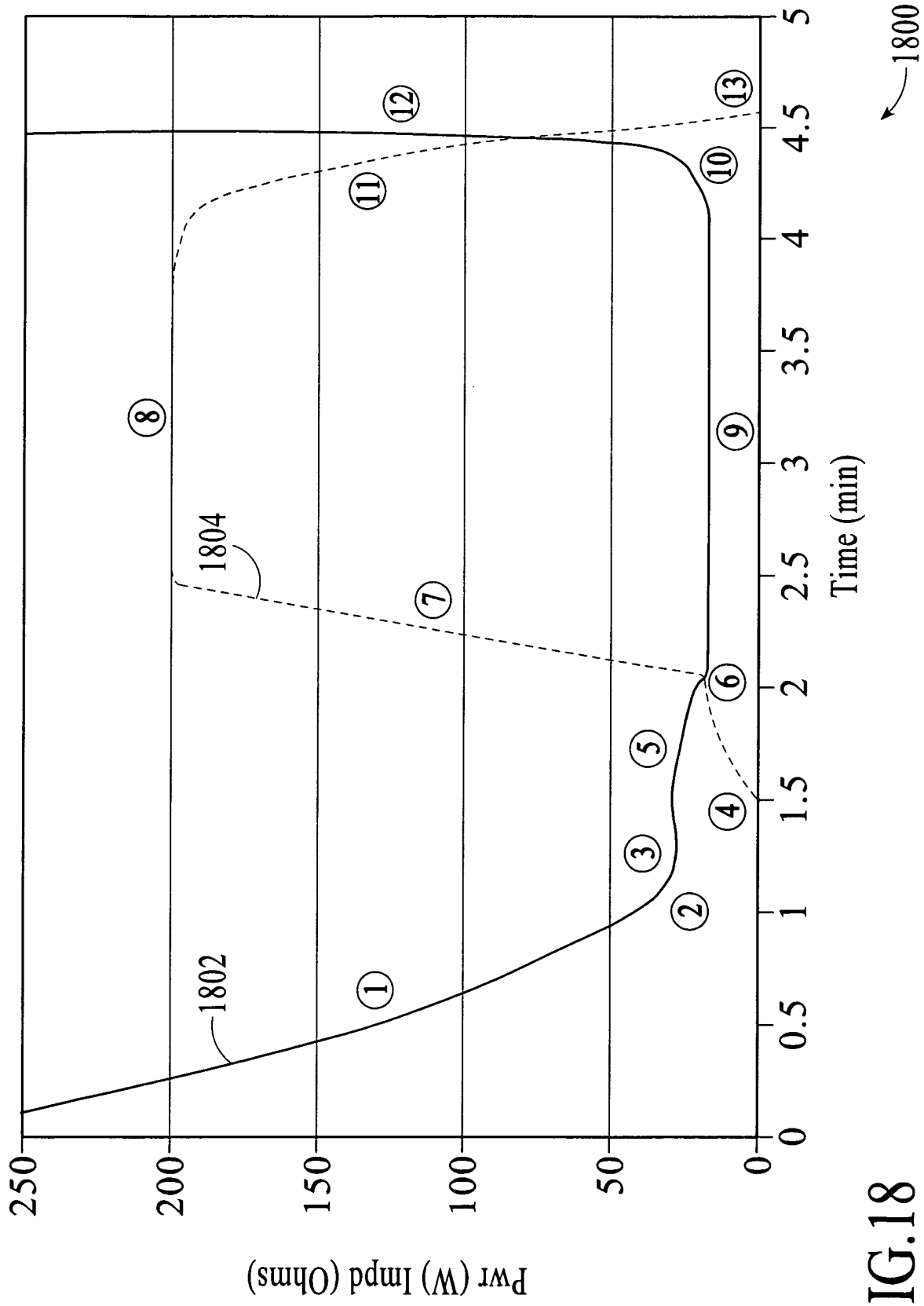

1800
Pwr (W) Impd (Ohms)
250
200
150
100
50
0
0
0.5
1
1.5
2
2.5
3
3.5
4
4.5
5
Time (min)
1802
1804
①
②
③
④
⑤
⑥
⑦
⑧
⑨
⑩
⑪
⑫
⑬

FIG.18

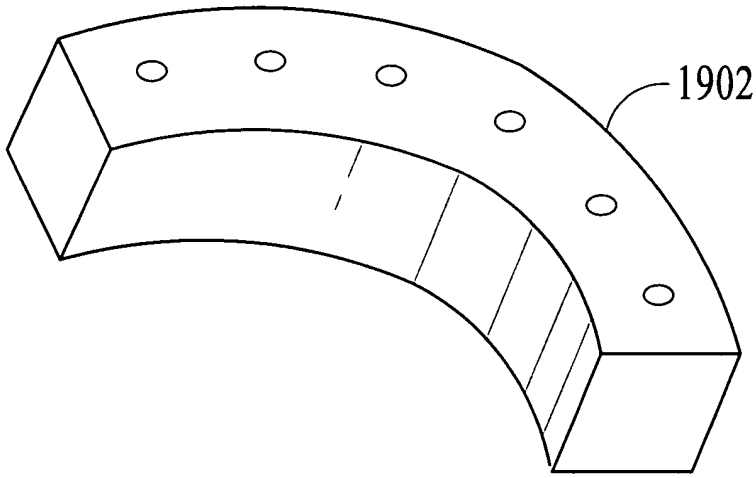


FIG.19

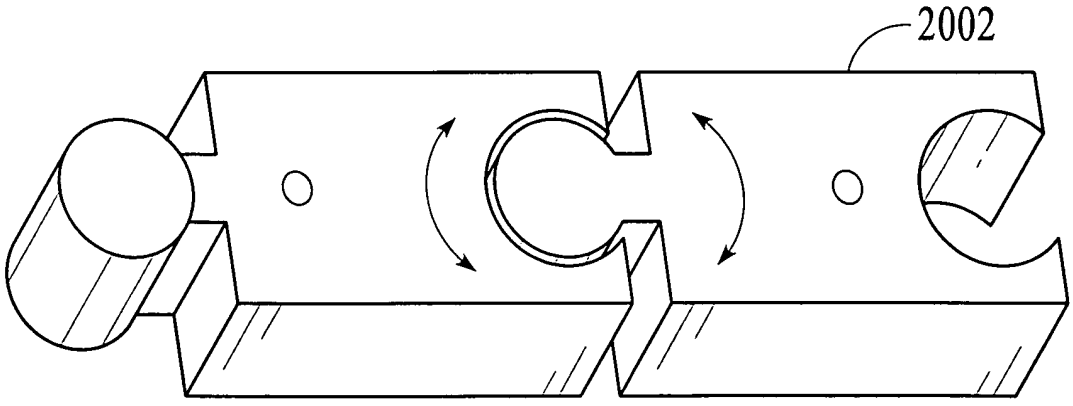


FIG.20

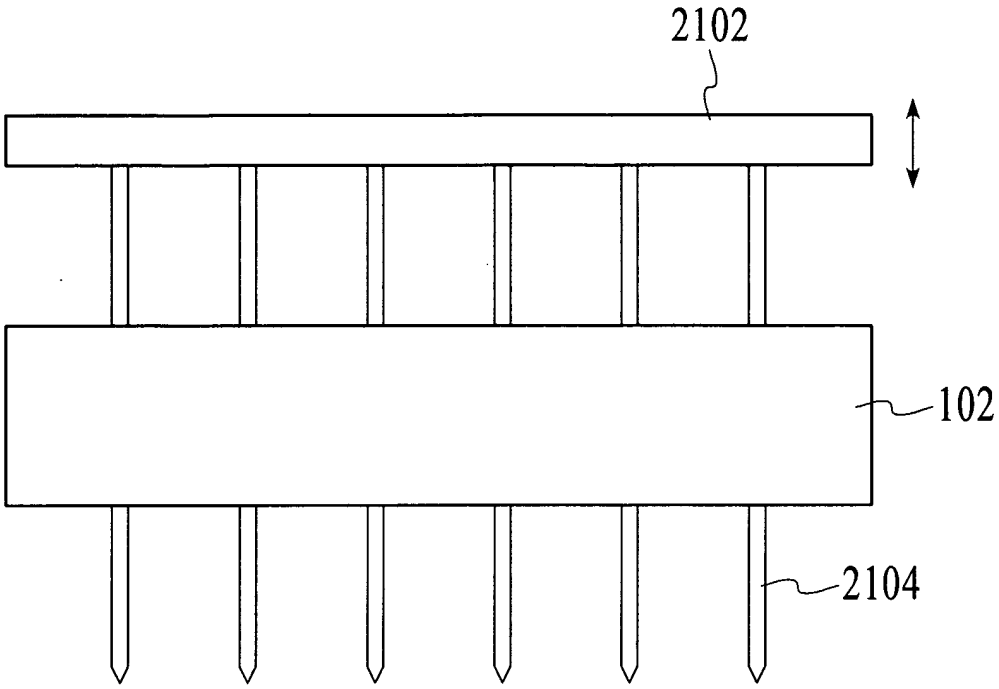


FIG.21

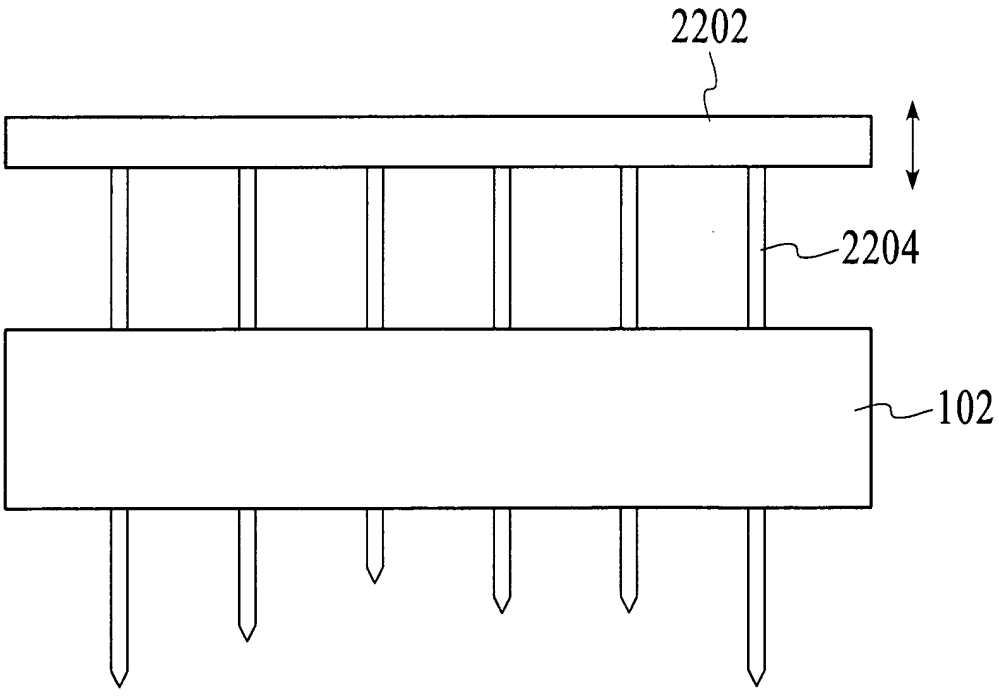


FIG.22

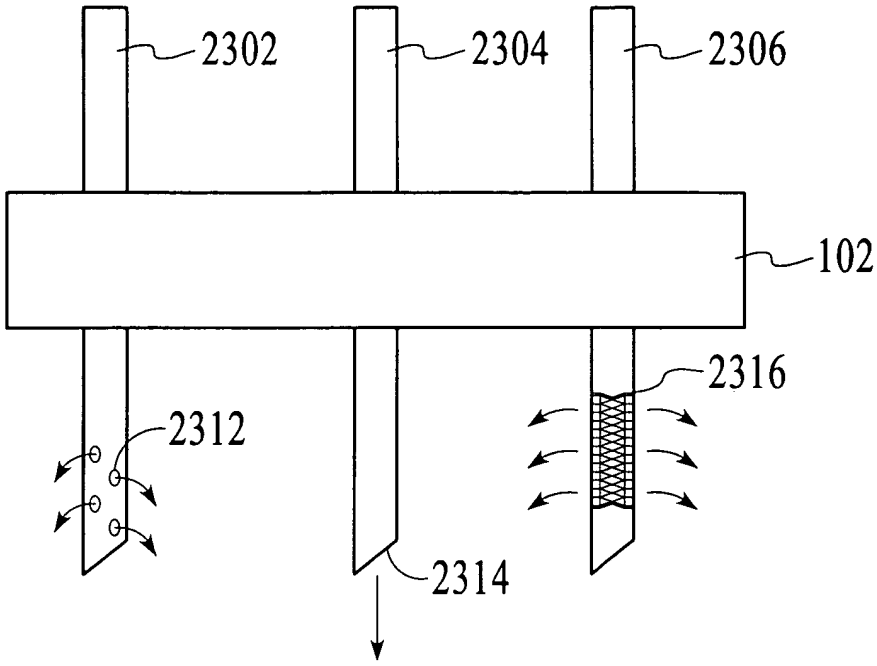


FIG.23

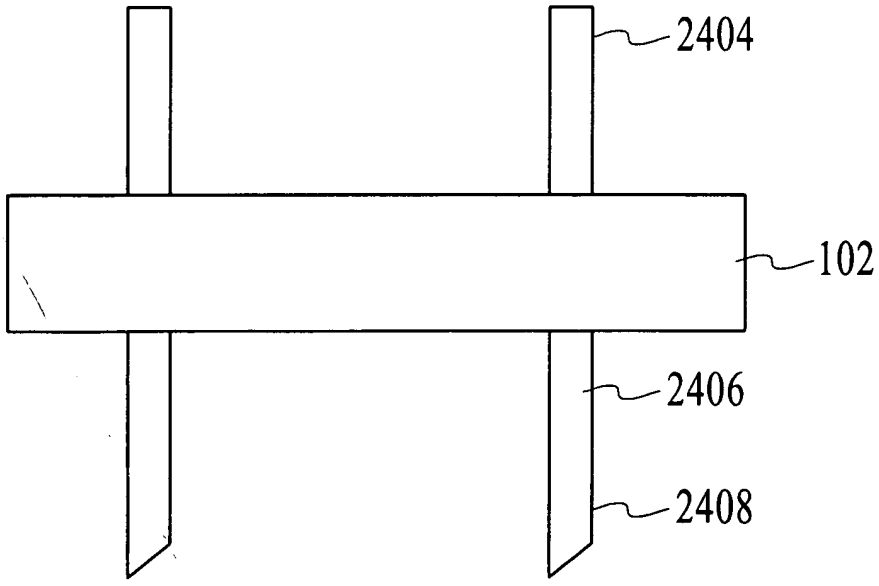


FIG.24